Raw Mil-Std-1553B Access

New listype support

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The D0 Detector control system signals are in large measure interfaced via the 1 MHz Mil-Std-1553B serial bus. The current support for this is documented in another document called Mil-Std-1553 Handling. This note describes support for a new listype designed for support network-requested raw 1553 commands.

A 1553 command word has the following format:

Bits	*Size*	*Function*
15–11	5	RT: Remote Terminal address
10	1	T/R: Data transmit direction (1=data from RT to controller)
9–5	5	SA: SubAddress code
4–0	5	WC: Word Count in range 0–31, where 0 implies 32 words

A new listype# 85 is designed to support specification of the controller base address, RT, SA and mode code via the 6-byte ident format used in the request, as follows:

Bits	*Size*	*Function*
23–16	8	Upper byte of 24-bit base address of controller memory
15–11	5	RT: Remote Terminal address
10	1	T/R
9–5	5	SA: SubAddress code
4–0	5	Mode code when SA=0 or 31

Note that the RT and SA fields are in their normal 1553 command position. The support software automatically fills in the T/R and WC fields when it prepares the command. (For the mode code case, those fields are assumed to be already set properly.) A data request includes the #bytes of data requested to be read or written. This value must be an even #bytes in the range 2–64, as only a single 1553 command will be executed. If the command is a setting, the T/R bit will be set to zero. If the command is a request to read 1553 data, the T/R bit will be set to one.

The `Exec1553` routine is invoked to execute the 1553 command. This routine has until now only been used by the 1553 Test Page application. If the D0 message protocol is used to send a setting of this type, an error status of 24 will be returned to indicate an error detected from the 1553 controller. In the case of an error when requesting data to be read, no error indication is returned, but the data words read will be set to zero.